REMARKS

Claims in the case are 24-55, upon entry of this Amendment. Claims 24, 29-36, 38-40 and 42 have been amended, Claims 52-55 have been added, and Claims 1-20, 22, 23, and 51 have been cancelled without prejudice herein.

Applicants may pursue cancelled Claims 1-20, 22, 23, and 51, which are drawn to a micro electro-mechanical device packaging system, in a continuing patent application.

Claim Amendments:

The claims have been amended to replace recitations of "protective layer" with --overcoat layer--. Support for these amendments is provided by the specification as a whole, and more particularly at: paragraph [0031] on page 6 of the specification, and Figure 3 (see, for example, overcoat layer 335); and paragraphs [0047] through [0049] on pages 9-10 of the specification, and Figure 4 (see, for example, overcoat layer 414).

New Claims:

Support for added Claim 52 is provided at paragraph [0046] on page 9 of the specification.

Support for added Claims 53 and 54 is provided by paragraph [0048] at page 10 of the specification.

Support for added Claim 55 is provided by Claim 1 as originally filed.

Anticipation Rejection:

Claims 1-9, 13, and 15 stand rejected under 35 U.S.C. § 102(a) as being anticipated by United States Patent Application Publication No. US 2004/0245586 A1 (**Partridge et al.**). This rejection is moot in light of the cancellation of Claims 1-9, 13 and 15 herein.

Obviousness Rejections:

I. Partridge et al. in view of Barth et al.

Claims 10-12, 15-20, 24-37, 40-42 and 46 stand rejected under 35 U.S.C. § 103(a) as being obvious over Partridge et al. in view of United States Patent Application Publication No. US 2006/0014374 A1 (**Barth et al.**). This rejection is respectfully traversed with regard to the amendments herein and the following remarks.

This rejection is moot relative to Claims 10-12 and 15-20, in light of their cancellation herein.

Partridge et al. disclose forming microelectromechanical systems and devices that include inorganic encapsulating layers (e.g., 28a, 28b, and 28c) which reside above an underlying substrate (e.g., 14). The microelectromechanical systems and devices of Partridge et al. include structures that are interposed between the inorganic encapsulating layers and the underlying substrate, such as a field area (22), a contact area (24) and a non-etched inorganic sacrificial layer (30). See, for example, the abstract; paragraphs [0001], [0010], [0046]-[0048] and [0092]-[0093]; and Figures 3 and 12 of Partridge et al. The inorganic encapsulating layers of Partridge et al. contain silicon, germanium, silicon/germanium, silicon carbide and gallium arsenide. See, for example, paragraphs [0047] and [0048] of Partridge et al.

In addition, Partridge et al. discloses microelectromechanical systems and devices that are formed by etching (e.g., with phosphoric acid) inorganic sacrificial layers (e.g., 30, 32) that are composed of, for example, silicon dioxide, silicon nitride, doped and undoped glass-like materials (e.g., phosphosilicate or bromophosphosilicate) and spin on glass. See, for example, paragraph [0058] of Partridge et al. Partridge et al. provide no disclosure, teaching, or suggestion with regard to sacrificial layers that are removed or removable by conversion thereof to a gaseous form by means of thermal decomposition. The inorganic sacrificial layers of Partridge et al. are NOT thermally decomposable to a gaseous form, at least not at a temperature that would be so low as to prevent destruction of the device itself, as would be recognized by a skilled artisan.

On page 3 of the Office Action the Examiner states that Partridge et al. disclose the substrate layer 14 as comprising non-silicon material, such as gallium arsenide. Applicants respectfully disagree. Partridge et al. describe the field region (22) and contact area (24) as being

distinguishable structures from the substrate (14). Partridge et al. disclose the field region (22) and contact area (24) as optionally comprising non-silicon materials, such as gallium arsenide. Partridge et al. do not disclose, teach, or suggest the substrate (14) comprising non-silicon materials, such as gallium arsenide. The disclosure of Partridge et al. with regard to the field region and contact area does not reasonably extend to or otherwise touch upon the substrate structure. See, for example, paragraph [0045] and Figures 3 and 12 of Partridge et al.

Barth et al. disclose the formation of a layered structure that involves thermally decomposing thermally decomposable structures (e.g., 112) composed of organic materials, that are interposed between upper (e.g., 124) and lower (e.g., 104) layers, which results in the formation of cavities (e.g., 128) therebetween. Barth et al. provide no disclosure, teaching, or suggestion with regard to the use of inorganic sacrificial structures, or removal thereof by means of etching.

Barth et al. describe the upper or covering layer of the layered structure as being designed so as to be: permeable to decomposable material; and protected from being destroyed or damaged when a decomposition process is being carried out, such as a thermal decomposition process having a temperature range of from 250°C to 400°C. See paragraph [0026] of Barth et al.

Barth et al. disclose the covering layer as being fabricated from organic materials having dielectric properties, such as polybenzoxazole. See, for example, paragraph [0061] and layer 124 of Figures 1G and 1H. In an attempt to remove the thermally decomposable structures of Barth et al. by means of the etching process of Partridge et al., the organic dielectric covering layers disclosed by Barth et al. would be damaged (e.g., perforated) and rendered substantially inoperable, as would be recognized by a skilled artisan. The combination of Partridge et al. and Barth et al. would render the layer assembly and process of Barth et al. inoperable for its intended purpose. As such, a skilled artisan would not be motivated to consider combining Partridge et al. and Barth et al.

In addition, a combination of Partridge et al. and Barth et al. would render the process of Partridge et al. inoperable. Partridge et al. disclose **sequentially** annealing the micromachined mechanical structure **after** the first (30) and second (32) sacrificial layers have been removed. See paragraph [0091] of Partridge et al. Barth et al. describe their process as

necessarily involving performing an annealing process **concurrently** with removal of the sacrificial structure (112). See, for example, paragraph [0062] of Barth et al. In addition, Partridge et al. disclose that annealing the micromachined mechanical structure results in densifying and sealing of the permeable / semi-permeable first encapsulation layer (28a). As such, modifying Partridge et al. to include the concurrent annealing-sacrificial structure removal process of Barth et al. would render Partridge et al. inoperable, since such a concurrent annealing-sacrificial structure removal process would seal the first encapsulation layer (28a), thus preventing removal of sacrificial structures, such as the first (30) and second (32) sacrificial layers, therethrough, as would be recognized by a skilled artisan.

If proposed modifications render a reference inoperable for its intended purpose, then there is no suggestion or motivation to make the proposed modification, and accordingly, the proposed modification would not be obvious. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Similarly, according to the Manual of Patent Examining Procedure, the claimed combination of references used to ground an obviousness rejection may not change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. MPEP 2145(III); 2143.01.

Partridge et al. and Barth et al. are directed to solving disparate problems. Partridge et al. is directed to providing microelectromechanical systems and devices. Barth et al. is directed to providing a layered arrangement having reduced capacitance. See, for example, paragraph [0016] of Barth et al.

Even if Partridge et al. and Barth et al. were combined, the method of Applicants' present claims would not result from such combination. The process disclosed by Partridge et al. involves first forming an inorganic sacrificial layer (e.g., 30) on a substrate (e.g., 14); and then subsequently forming micromechanical structures (e.g., 20a-d) on the pre-existing inorganic sacrificial layer. Optionally, a further inorganic sacrificial layer (e.g., 32) may be subsequently formed. See, for example, paragraphs [0052] and [0053] and Figures 4A-4C of Partridge et al. The method of Barth et al. does not involve micromechanical structures. A combination of Partridge et al. and Barth et al. would necessarily involve first forming a sacrificial layer on a substrate, and then subsequently forming micromechanical structures on the previously formed sacrificial structures. The method of Applicants' claims involves forming a thermally

decomposable sacrificial layer on a substrate, so as to encapsulate at least a portion of a **pre-existing** micro electromechanical device. As such, a combination of Partridge et al. and Barth et al. would not, as it could not, result in the method of Applicants' claimed method.

In light of the above amendments and remarks, reconsideration and withdrawal of these rejections is respectfully requested.

II. Partridge et al. in view of Silverbrook

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Partridge et al. in view of United States Patent Application Publication No. US 2003/0122227 A1 (**Silverbrook**). This rejection is moot in light of the cancellation of Claim 14 herein.

III. Partridge et al. in view of Barth et al. and further in view of Silverbrook

Claims 21-23, 38, 39, 43-45, 47-49, and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Partridge et al. in view of Barth et al. and further in view of Silverbrook. This rejection is respectfully traversed with regard to the amendments herein and the following remarks.

This rejection is moot relative to Claims 21-23, in light of their cancellation herein.

Partridge et al. and Barth et al. have been discussed above. As discussed above, neither Partridge et al. nor Barth et al. provide the requisite disclosure that would motivate a skilled artisan to combine or otherwise modify their disclosures in an attempt to somehow arrive at Applicants' presently claimed method of producing the micro electromechanical device packaging system. In addition, and as discussed above, even if Partridge et al. and Barth et al. were combined, Applicants' presently claimed method would not result from such combination.

Silverbrook discloses a micro-machined accelerometer package that includes a hollow molded protective cap that is subsequently bonded to the surface of a pre-existing accelerometer so as to resultantly define a cavity therebetween, in which a cantilevered mass may move. The micro-machined accelerometer package of Silverbrook may also include a copper lead frame, and a protective layer encapsulating the entire assembly (e.g., Figure 23). See, for example, the abstract, paragraphs [0001], [0003]-[0008], [0068] and [0069], and Figure

23 of Silverbrook. As such and as would be recognized by a skilled artisan, Silverbrook fails to cure, overcome or otherwise reasonably address the deficiencies of Partridge et al. and Barth et al., for example, with regard to the lack of motivation to so combine them, the failure of such combination to result in Applicants' claimed invention, and the inoperable result of such combination.

In addition, Partridge et al. teaches away from the cap bonding process of Silverbrook. Partridge et al. describes cap bonding processes, for example, as disclosed by Silverbrook, as being undesirable for reasons including the difficulty of cost effectively integrating such processes with high performance integrated circuitry on the same substrate. See, for example, paragraph [0005] of Partridge et al. As such, a skilled artisan would not be motivated to combine Partridge et al. and Silverbrook.

In light of the above amendments and remarks, reconsideration and withdrawal of this rejection are respectfully requested.

CONCLUSION

In light of the above amendments and the preceding remarks, Applicants' presently pending claims are believed to define an invention that is unanticipated and unobvious with respect to the cited prior art. Reconsideration of the rejections and allowance of all of the presently pending claims are respectfully requested.

Respectfully submitted,

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